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BEST HR PRACTICES IN THE FEDERAL S&T COMMUNITY

A study conducted for the

Council of Science and Technology Advisors (CSTA)

INTRODUCTION

In January 2002, Bronson Consulting Group was engaged to identify human resources best practices in the Canadian government concerning persons working in science and technology. It was emphasized to the consultant that the CSTA is committed to providing departments with practical suggestions.

This study is one of several studies commissioned by the CSTA HR Sub-Committee in response to the request by the Cabinet Committee for the Economic Union (CCEU) to CSTA to conduct an examination of the challenges unique to the renewal of federal S&T personnel and to recommend practices and policies that address these challenges.

Input was obtained from over 30 persons in eleven federal departments (henceforth referred to simply as departments). The persons interviewed included:

- Executives and managers, at all levels, with responsibilities for science and technology
- Human Resource managers and staff in departments with S&T workers
- Persons who are in central agencies and who have worked on government-wide initiatives concerning people in the S&T community
- Persons with responsibility for strategy and policy in organizations with S&T workers

Bronson met with the CSTA's HR Sub-Committee on February 25, 2002 to review:

- Overall findings
- A list of over 70 practices that had been identified
- A grouping of the practices into themes

This report is organized as follows:

1. Best practices concerning:
   - Monitor and evaluate supply and demand conditions
   - Attract (recruit) S&T workers
   - Maintain and recognize (retain/rejuvenate)
   - Retire

   These four categories were specified in Bronson's terms of reference.

2. Practices being proposed by departments

3. Challenges

4. Conclusion

BEST PRACTICES

This section presents examples of practices being applied in the federal government. The practices have been grouped according to their major focus. In many cases, the practices serve multiple purposes, e.g., addressing supply and attracting people are very inter-dependent for some job categories, particularly for research scientists.

Practices concerning "monitor and evaluate supply and demand conditions"

The demand for S&T workers in the next 5-10 years will be determined largely by:

- Requirements: The biggest challenge in determining the requirements is for the research scientists.
- Retirements: Federal departments find that persons in the technical services categories tend to retire when they become eligible for retirement. Research scientists, on the other hand, tend to stay on after they become eligible for retirement.

Departments are improving their approach to determining requirements for S&T expertise and people. Whereas the approach was once largely driven by input from the scientists, several departments now apply a holistic approach to determining requirements along the lines of:

1. Identifying short and longer-term needs and opportunities from an end-use perspective: This involves assessing current and potential government policy issues as well as examining the government's mandate, objectives and priorities and trends that influence them. Discerning the needs and opportunities includes the involvement and collaboration of persons from both within and outside the S&T community.
2. Identifying the scientific knowledge and expertise needed to anticipate, identify and address the needs, opportunities and trends: This requires the involvement of persons with "expansive" knowledge of S&T as well as persons who are adept at working on the interface between policy and science.
3. Determining the required in-house expertise: Key factors in determining these requirements are: (a) availability of expertise in universities or the private sector; (b) need for objective and timely advice; (c) expected duration of the requirement; and (d) most cost effective and feasible alternative (compared with, for example, relying on or developing a capability in universities and / or industry).

At the government-wide level, this approach is being applied in the Federal Innovation Networks of Excellence (FINE) initiative that is currently being launched and that has been emulated, for example, by: (a) The Department of National Defence in launching an R&D initiative that was triggered significantly by September 11; and (b) Natural Resources Canada's Northern Science initiative.

Departments generally apply a passive approach to determining supply conditions, namely through the recruiting process. However, several departments have proactive initiatives to develop a supply in areas where there is a gap between supply and demand. The most critical area is for persons at the Ph.D. and M.D. level in some specialties. The following are examples of practices used in departments to develop supply. Several of the practices involve some form of collaboration with universities.

- Meet periodically (e.g., annually) with Deans / Department Heads in Canadian universities to indicate the direction of their research programs and their requirement for expertise and people. The two-way dialogue provides opportunities to exercise influence and identify areas in which departments need to be proactive and entice graduate students to do research and become experts. A department indicated that this led to undertaking joint studies with Deans / Department Heads concerning demand and supply.

- Collaborate with NSERC by establishing an NSERC-Academic-Departmental working group to expedite collaboration to build capacity in selected areas of interest to the department.

- Arrange to have government scientists work with experts in universities or research organizations, within or outside Canada, in areas where the government requires in-house capability. One department has a merit award program that enables scientists to work for 4 –6 months at a university or research lab, in Canada or elsewhere, to develop expertise that is needed by the department. In some cases, the reverse arrangement is applied where an expert from a university or research organization comes to work in the department with the expressed view of transferring knowledge to designated person(s) within the department.

- Arrange for university graduate students to perform research that pertains to areas of interest to the department. In such cases, a departmental scientist and a university faculty member usually share responsibility for supervising the student. In many cases, the student may be working on government premises. Two departments indicated that they have government scientists who are located on university premises. In this case, the scientists continue to work on government projects, have students working on their projects and may have some teaching duties.

- Provide a supplement or top-up to NSERC postgraduate scholarships and postdoctoral fellowships. Departments can exercise control over the criteria used to award the supplements to target specific needs.

- Arrange for Post Doctoral Fellows (using NSERC's PDF program) and / or university faculty, while on sabbatical, to work in the department.

- Hire young scientists before older scientists retire. This is sometimes referred to as "bridging", "double banking" or "under-study". The overlap is typically 12 – 18 months. Treasury Board had a small program, the Graduate Opportunity Strategy with $3.5 million for one year that provided departments with funds to hire young scientists. This program is currently being evaluated.

Many of the above practices have a strong link with attracting persons to work in government. Several of the practices are targeted to meet specific requirements.

Practices concerning "attract (recruit)"

Practices that departments have used and found to be effective are:

- Work closely with colleges and universities; and
- In situations where the market is extremely competitive, speed-up the hiring process by obtaining separate employer status and offer signing-bonuses or a competitive salary.
- Encourage employees to be on the look out for persons who should be approached for employment.

Several departments are undertaking initiatives such as setting up web sites, attending job fairs, setting up kiosks and hosting special events. These "general marketing" initiatives appear to be more effective when departments network, collaborate and establish presence at the colleges and universities with both faculty and students through initiatives such as:

- Having senior managers and scientists make presentations to students and meet with faculty and department heads on campuses;
- Establishing physical presence on selected campuses in order to get close to both students and faculty; and / or
- Applying practices such as those presented in the previous section.

In addition to the above, departments apply practices that are targeted at: (1) Students and college / university graduates; (2) Post-graduate students and graduates; (3) Specialized professionals and experts; and (4) Persons at the mid-career level. The practices presented in the remainder of this section have been grouped according to these four categories.

Students and college / university graduates

Generally speaking, many departments begin the recruiting process by hiring coop and summer students and providing them with excellent work experiences, so that they develop interest in working full-time in government after graduation as well as convey a positive message to their fellow students. There are both departmental and government-wide programs that provide financial incentives to hire students generally as well as particular target groups such as aboriginals and women in science.

Examples of practices being used by departments to attract persons in these categories are:

- Collaborate with universities to establish programs whereby students can get credits for work that meets mutually agreed criteria and that is performed by students while working in or for government.

- Provide students with part-time work while at university. The students need not perform the work on government premises, particularly if the government lab and their university are in different cities. A faculty member with whom the department has worked may assist in the supervision.

- Offer recruits an extensive training program after they are hired. This approach is most effective in situations where the type and number of positions and level of recruiting lends itself to, and justifies, establishing a training program. The Canadian Food Inspection Agency, for example, has found it to be effective for training inspectors.

Post-graduate students and graduates

In addition to the practices already presented, examples of practices being used by departments to identify and attract persons at the Masters, Doctorate and Post-Doctorate levels are:

- Host workshops that involve world-class experts. While the workshops are not primarily aimed at recruiting, the participants learn about the research being done in the department, and the workshops generate a message that the department is an attractive place to work. The workshops are also effective for attracting persons at the mid-career stage.

- Use the Public Service Commission's Occupational Training Program as a source list for identifying persons to work in the area of policy and S&T.

- Generate interesting opportunities through joint government-industry research programs, e.g., a matching funds program whereby the department solicits proposals from industry and shares the cost on a 50-50 basis. Such programs create attention and attract persons who, later, are potential candidates for full-time employment.

Specialized professionals and experts

This category includes medical doctors, veterinarians and highly specialized experts who can demand lucrative compensation packages. Attracting such persons requires:

- Developing an understanding of the target group
- Negotiating terms of employment

Veterinarians and medical doctors may be tired of having a private practice, or women in these professions may be seeking part-time work while they raise their children. For highly sought-after specialists, they may be willing to contribute to the public good and accept positions on a term basis, often through interchange arrangements with organizations such as teaching hospitals.

Persons in this category are identified through networking with the universities and professional associations, and targeted advertising.

Persons at the mid-career level

Departments indicated that at the mid-career level (and approaching the mid-career level), there is a shortage of research managers. This resulted from the downsizing in the mid 1990s and S&T management positions at all levels being held by predominantly older persons. Some departments indicated that: (a) First level managers (project leaders) should be highly respected scientists; and (b) Science managers at middle management levels should have lead responsibility for a project or initiative to ensure that they remain connected with the scientists and science.

The options for filling these positions are:

1. Attract research scientists into management positions through such practices as:

    - Encouraging scientists to take management-training programs to determine their interest in management. One department cited a learn-apply program that it had offered ten years ago as having been very successful. It involved in-class learning as well as guided on-the-job projects. Many of its graduates now hold senior management positions. It was discontinued as a result of Program Review.

- Enabling scientists to assume project leader responsibilities and to stay in the research scientist category. This enables the scientists to postpone a decision on whether to pursue advancements through the management stream or to stay in the research scientist category, where the latter is more attractive financially unless they pursue and attain a senior management position.

2. Recruit persons from other departments. While this doesn't solve the government-wide shortage, it is an option at the departmental level, particularly at the more senior levels.

3. Recruit persons from outside government. Departments identify such persons through:

   - Hosting of workshops and having scientists present papers at world-class conferences and publish articles in world-class journals provides credibility when persons are approached or positions are advertised.
   - Attending conferences with one of the objectives being to identify and make contact with prospective candidates.
   - Undertaking collaborative research projects that involve industry, other research organizations and / or universities
   - Advertising in journals and magazines that are read by the persons being targeted
   - Involving potential candidates in peer reviews
   - Tracking alumni who left early in their career

   Challenges encountered by departments in hiring mid-career persons from outside are compensation and the inflexibility of the government's pension and leave package.

Practices concerning "maintain and recognize (retain/rejuvenate)"

S&T workers, like all persons, want a work environment in which they:

- Are respected
- Can trust management
- Experience open and transparent decision-making and information exchange
- Are empowered to be innovative and productive
- Grow personally and advance in their career aspirations
- Perform work that is widely regarded as relevant and significant
- Are provided some flexibility of adjusting their work schedule with personal commitments

Important contributors to these attributes stem from having a supportive employer and effective leadership and management.

Departments are increasingly aware of the importance of S&T workers developing non-technical competencies to perform and excel, e.g., inter-personal relations, teamwork, project management and change management. Practices being applied to reinforce the importance of, as well develop, these people-related skills are:

- Provide employees with the option of obtaining 360-degree feedback without having to disclose the findings to their supervisor and the results not going into their personnel file.
- Provide training-development programs that combine in-class learning with on-the-job application and coaching.
- Organize open "round table" meetings where people can discuss challenges such as workload and explore ways of improving knowledge management.
- Make use of programs offered government-wide such as the Career Assignment Program (CAP) and learning programs provided by the Canadian Centre for Management Development (CCMD).
- Apply competency profiles, for all levels of staff and managers, to assess their performance, develop customized learning plans and prepare for advancement.
- Appoint "business partners", in the Human Resources division, who are advisors, problem-solvers and coaches to managers and teams.
- Provide mentoring and coaching. Departments are finding that these services are best provided on an upon-demand basis.

Examples of practices aimed at retaining, maintaining, honouring and rejuvenating scientists are:

- Apply the guidelines for promoting scientists such that there is alignment with what is expected of the scientists. For example, an expectation to collaborate with industry or policy groups, will impact on the number of publications. This needs to be acknowledged when applying the guidelines.
- Require that the first two levels of research management be directly involved in the research (rather than become the managers becoming, or being perceived by the scientists as being, administrators). Departments have found that this contributes to scientists feeling connected with the organization. It also strengths the leadership of the science performed by the organization.
- Provide opportunity for developing scientific expertise and international stature through attendance at international conferences and interchanges to world-class organizations.
- Enable top-level scientist to move into first level management (i.e., typically project leaders) without requiring that they leave the research scientist category.
- Provide adequate budget for reasonably good and up-to-date lab facilities, technical support, supplies and services, and travel.
- Focus on performing first-class research. This is important to attract and keep the best people, as well as for collaborating with the best people.
- Provide scientists with feedback on their input and advice to policy development and decision-making.
- Acknowledge their contribution, both formally through such means as awards and study leaves as well as informally through such ways as verbal acknowledgements in meetings and in the hallway.
- Rely on expertise that exists in other government departments, rather than build duplicate capability. Scientists have little respect for empire building. Initiatives such as FINE aim to achieve this for government-wide initiatives.

While there is growing concern about the number of term employees in government, there will likely always be term employees in areas where, for example, funded activities have a sunset and require specialized expertise that is not required elsewhere. However, one Department emphasized the need to treat term employees as equal to permanent employees in order to for the employment arrangement to be win-win for both the employer and the term employee.

Practices concerning "retire"

Minimizing the loss of institutional knowledge and expertise is most critical in two areas:

- Retirement of scientists who are authorities in scientific areas that are critical to the department and in which there are no younger scientists within the department with significant expertise in these areas.
- Retirement of the S&T managers who are approaching retirement age, with few S&T workers who are truly ready to step into the management positions.

Practices to retain the knowledge of scientists who are approaching retirement or who have retired are as follows:

- Appoint retiring scientists as Emeritus Scientists. Department that approach these appointments strategically focus the appointments to persons whose expertise is critical to the department and establish agreements that spell out expectations.
- Encourage scientists to retire in order to free up salary funds to hire young scientists, and establish arrangements with the retired scientists to work on a fee-for-service in a manner that does not affect their pension income. The retired scientists can, for example, provide guidance to younger researchers or participate in projects requiring their expertise.
- Apply some of the practices that were presented earlier in the section dealing with demand and supply, including such practices as bridging / double banking and having the senior scientists supervise graduate students in universities.
- Instill a culture of being proactive and responsive to change by: (a) organizing around projects; (b) expecting project leaders to be on the look out for emerging needs and flagging changes; (c) moving people from project to project; (d) expecting everyone to be flexible and responsive. Among other things, this has the effect of senior scientists sharing their knowledge with numerous persons and the organization being less vulnerable when they retire or leave.
- Establish arrangements with universities whereby senior scientists can move to universities to supervise graduate students with an understanding that they continue to work on projects that are of interest to the department.

With regard to retaining the knowledge of S&T managers approaching retirement, S&T organizations appear to be lagging behind what some "non S&T" organizations are doing, such as:

- Preparing selected persons for management by assigning prospective candidates to shadow managers who will soon retire, thereby providing them with opportunity to observe as well as perform function or duties that the S&T manager assigns to them. This is done with the understanding

- Providing new S&T managers with coaching and counseling support.

Some departments suggest a need to establish a pool of candidates and providing persons in the pool with a management development program, which could be like an "S&T Career Assignment Program".

PRACTICES BEING PROPOSED BY DEPARTMENTS

Three interviewees proposed the following practices, that are at various stages of discussion within their respective department:

1. An arrangement whereby Treasury Board would loan funds to departments to hire young students prior to the senior scientists retiring, and departments would repay the loan with the salary savings when the senior scientist retires. This scheme is viable and attractive if the senior scientist has expertise that is needed in the longer term and it is known when the senior scientist intends to retire.

2. Collaborate with or request universities to teach "soft" skills to students, i.e., skills such as time management, project management, inter-personal relations, teamwork, networking and client relations.

3. Require that all federally-funded arm-length foundations have as one of their objectives and priorities to assist in meeting the federal government's requirements for research results and research scientists in specified areas. Some foundations already do this.

CHALLENGES

Demographic analyses have shown that close to 5,000 federal S&T workers will become eligible for retirement over the next five years. The first challenge is that students and S&T workers no longer regard the federal government as a first choice of employment. Several federal S&T organizations have been down-sized during the past ten years. As well, the press has brought attention to a few cases of disharmony between government scientists and their management. This makes it more difficult to attract and retain S&T workers, particularly since there is a global demand for S&T workers, including from Canadian universities who are offering better compensation packages than the federal government. Overcoming this challenge will require demonstrated support at all levels of government.

The second challenge is a growing need for experienced and effective leaders. Departments indicated that there are several contributing factors:

- There has been very little movement of people in S&T organizations during the past 5 – 10 years. This has resulted in few young S&T workers having had opportunity to move in management positions.
- The best S&T workers are more attracted to the technical subject matter than management positions.

Overcoming this challenge will require a concerted effort to attract first-class federal S&T workers to, and prepare them for, management positions, as well as to attract first-class mid-career S&T workers from outside the federal government.

A third challenge in some situations is for departments to attract S&T workers who can make much more money elsewhere.

CONCLUSION

The findings from the interviews suggest that the biggest challenge to overcome in attracting and retaining S&T workers is that the federal government is no longer regarded as a first choice of employment by S&T workers. In some situations, another challenge is competing with the more attractive compensation being offered by universities and in the private sector.

With respect to best practices, the findings from the interviews suggest there is no a silver bullet to attract and retain people. However there are some themes:

- Solicit the government's overt support for an in-house S&T capability
- Apply effective leadership and management
- Work closely with the universities and granting agencies
- Hire students and treat them as future recruits
- Apply measures to ensure that all employees approach their job with enthusiasm

Departments need to select the practices that will meet their need. It requires working at both the strategic level as well as getting in the trenches to find and polish the "diamonds". This all requires leadership. Leadership is getting increased attention:

- There is a Committee of Senior Officials (COSO) that reports to the Clerk of the Privy Council to deal with human resources issues and a COSO S&T Community Sub-Committee that is chaired by a deputy minister of a science-based department.
- The recent Federal Innovation Networks of Excellence is being heralded as a model for planning and performing federal science.
- The Canadian Centre of Management Development (CCMD) recently had a visiting fellow from the federal science community.
- Departments are taking initiative to provide their S&T workers with training and development opportunities.

Leadership within the S&T community is also important for garnering support for S&T in government from Cabinet and from central agencies.

Create a vision that connects what S&T workers are passionate about getting with what you, the employer, are passionate about giving.